

# PATENT ABSTRACTS OF JAPAN

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(71)Applicant : NIKON CORP

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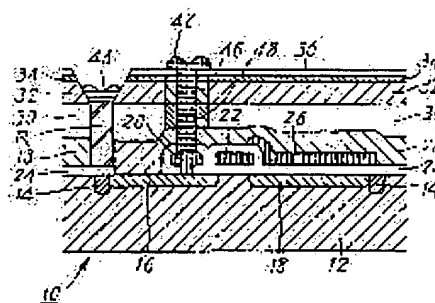
(72)Inventor : UDAGAWA KENJI

## (54) INFRARED DETECTOR

(57)Abstract:

**PURPOSE:** To form a single crystal layer capable of forming an infrared detecting element having high quality onto an Si substrate, to which a signal processing circuit element is shaped, by forming a buffer layer onto the element forming Si substrate to which the signal processing circuit element is shaped.

**CONSTITUTION:** In an element forming Si substrate 10, an input diode 16 and a buried type CCD 18 are formed into an element isolation region on the main surface of a P-type Si substrate 12. A transfer gate electrode 22 is shaped onto a clearance section between the diode 16 and the CCD 18, and a CCD transfer electrode 26 is formed onto the CCD 18. A crystal layer 28 consisting of CaF<sub>2</sub> and BaP<sub>2</sub> is grown and shaped to such a substrate 10 so that the composition ratio of BaF<sub>2</sub> is increased gradually. A single crystal film 30 as a CdZnTe layer 30 is formed onto the layer 28. An infrared detecting element composed of a P-type HgCdTe layer 32 and an N-type HgZnTe layer 34 is shaped onto the layer 30. Accordingly, the infrared detecting element can be formed onto a signal processing circuit element made up of Si.



## LEGAL STATUS

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TI - Infrared detector used for longer wavelength - has buffer layer between silicon substrate and monocrystal layer of mercury cadmium telluride NoAbstract Dwg 0/4  
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 AB - PURPOSE:To form a single crystal layer capable of forming an infrared detecting element having high quality onto an Si substrate, to which a signal processing circuit element is shaped, by forming a buffer layer onto the element forming Si substrate to which the signal processing circuit element is shaped.  
 - CONSTITUTION:In an element forming Si substrate 10, an input diode 16 and a buried type CCD 18 are formed into an element isolation region on the main surface of a P-type Si substrate 12. A transfer gate electrode 22 is shaped onto a clearance section between the diode 16 and the CCD 18, and a CCD transfer electrode 26 is formed onto the CCD 18. A crystal layer 28 consisting of CaF<sub>2</sub> and BaP<sub>2</sub> is grown and shaped to such a substrate 10 so that the composition ratio of BaF<sub>2</sub> is increased gradually. A single crystal film 30 as a CdZnTe layer 30 is formed onto the layer 28. An infrared detecting element composed of a P-type HgCdTe layer 32 and an N-type HgZnTe layer 34 is shaped onto the layer 30. Accordingly, the infrared detecting element can be formed onto a signal processing circuit element made up of Si.  
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